On the Robustness of Supercritical Fluid Chromatography for Pharmaceutical Analysis

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Abstract

Repeatability and reproducibility are key words in pharmaceutical analysis. In this framework, supercritical fluid chromatography (SFC) has been evaluated for the analysis of a series of achiral neutral, basic and acidic drugs.

The components were analyzed on three different SFC instruments (Agilent Technologies, Jasco and Selerity), four different stationary phases (Silica, Cyanopropyl Silica, Ethyl-pyridine Silica and Triazole Silica) and using four different mobile phase compositions. Both UV and MS detection were included in the evaluation study.

Based on the initial experiments, generic conditions were selected to repeat the study on columns packed with four different batches of each stationary phase.

The data obtained have been compared with RP-LC values showing that SFC, under specific conditions, can be applied in a regulated environment.

Key words: Robustness, Supercritical Fluid Chromatography, Silica, Cyanopropyl Silica, Ethyl-pyridine Silica, Triazole Silica